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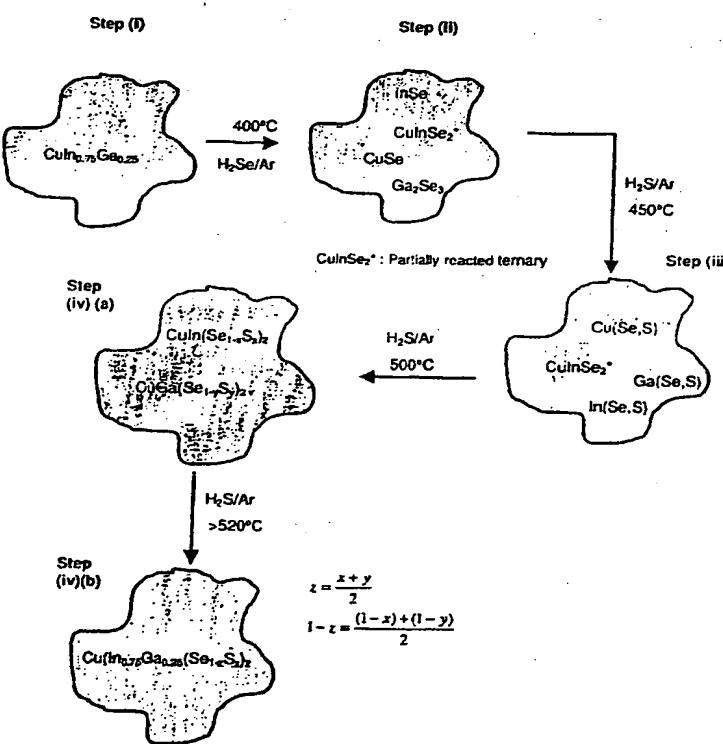
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(54) Title: METHOD FOR THE PREPARATION OF GROUP IB-IIIA-VIA QUATERNARY OR HIGHER ALLOY SEMICONDUCTOR FILMS



(57) **Abstract:** This invention relates to a method for producing group IB-IIIA-VIA quaternary or higher alloy semiconductor films wherein the method comprises the steps of (i) providing a metal film comprising a mixture of group IB and group IIIA metals; (ii) heat treating the metal film in the presence of a source of a first group VIA element (said first group VIA element hereinafter being referred to as VIA₁) under conditions to form a first film comprising a mixture of at least one binary alloy selected from the group consisting of a group IB-VIA₁ alloy and a group IIIA-VIA₁ alloy and at least one group IB-IIIA-VIA₁ ternary alloy; (iii) optionally heat treating the first film in the presence of a source of a second group VIA element (said second group VIA element hereinafter being referred to as VIA₂) under conditions to convert the first film into a second film comprising at least one alloy selected from the group consisting of a group IB-VIA₁-VIA₂ alloy and a group IIIA-VIA₁-VIA₂ alloy; and the at least one group IB-IIII-VIA₁ ternary alloy of step (ii); (iv) heat treating either the first film or second film to form a group IB-IIIIA-VIA quaternary or higher alloy semiconductor film.



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